University of Guyana
Faculty of Technology

EMT 121 - Problem Set I

February 4, 2010

1. Add the following binary numbers.

    (a) $100011 + 1100$

    (b) $1000011101 + 10000000$

    (c) $1001100 + 1100101$

2. Determine the two's complement for the following binary numbers:

    (a) 10001010 (b) 11010111 (c) 11111 (d) 000000000

3. In a computer system that represents all integer quantities using two's complement form , the most significant bit (MSB) has a negative place value. Given the place-weighting, convert the following eight-bit two's complement binary numbers to decimal form:

    (a) 01000101 (b) 11010111 (c) 10101010

4. Add the following byte-long(8 bit) two's complement numbers, and then convert all binary quantities into decimal form to verify the accuracy of the addition.

    (a) $00110101 + 00001100$ (b) $01110110 + 00000010$ (c) $11111110 + 11011101$

5. Convert the following from Hexadecimal to binary and octal.

    (a) $2F7A53$ (b) $CFA8762$

6. Convert to decimal form.

    (a) 11001.11_2 (b) $6F8.3D5_{16}$
    (c) 776.143_8